MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 1, 2019/2020

MMC3013 – MOTION CAPTURE
(All sections / Groups)

17 OCTOBER 2019
9.00 a.m - 11.00 a.m
(2 Hours)

INSTRUCTIONS TO STUDENTS

1. This Question paper consists of 7 pages including cover page with 10 questions in Section A and 4 questions in Section B. Total marks is 40.

2. Answer **ALL 10 questions in Section A**. Each question carries 1 mark.

3. Answer **ONLY 3 out of 4 questions in Section B** and the distribution of the marks is as stated.

4. Please write all your answers in the <u>answer booklet</u> provided.

Section A
Answer All Questions. Total marks are 10.

1. During the process of camera calibration in Motive software, it is important to apply "Mask Visible" before starting the wanding session. What is the function of "Mask Visible"?
   A. To enable the optiwand visibility during the wanding process.
   B. To remove any irrelevant reflective object that cannot be removed from capture volume.
   C. To enable the selection for ground plane.
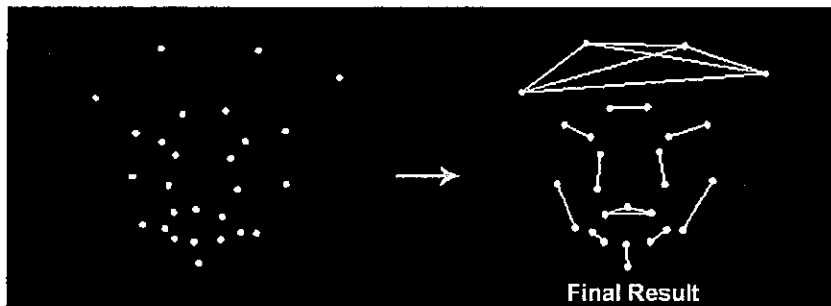   D. To enable the camera to calculate the sample of the wanding process.

Figure 1

2. Figure 1 shows the process of facial calibration inside the Arena (Expression) software. To get the exact result shown in the figure above, you need to

   _____.

   A. Select the 6 markers on the mouth and press the "Create" button.
   B. Select the 4 markers on the cheek and press the "Create" button.
   C. Select the 4 markers on the eye and press the "Create" button.
   D. Select the 4 markers on the top of the head and press the "Create" button.

3. What is the use of motion capture data in the current industries?
   A. To study motion or to give an illusion of life to 3D models.
   B. To replace the traditional key-frame animation.
   C. To easily cut the production cost and time.
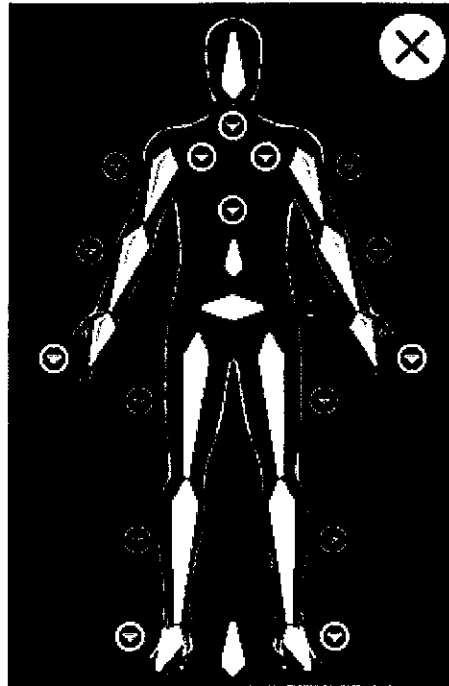   D. To replace rotoscoping.

Continued ....

Figure 2

4. To retarget a motion capture data to any rigged 3D character, a _____ must be created for each motion capture data and rigged 3D character using the HumanIK panel shown in the above figure in Maya software. What is the missing statement?

    A. Character Definition
    B. Custom Rig Mapping
    C. Quick Rig Tool
    D. Skeleton

5. "Hooked onto the performer's back; as the performer moves, this exoskeleton is forced to move as well and sensors in each joint feel the rotations". Which types of motion capture (MoCap) system does this phrase refer to?

    A. Electrical MoCap System
    B. Optical MoCap System
    C. Magnetic MoCap System
    D. Mechanical MoCap System
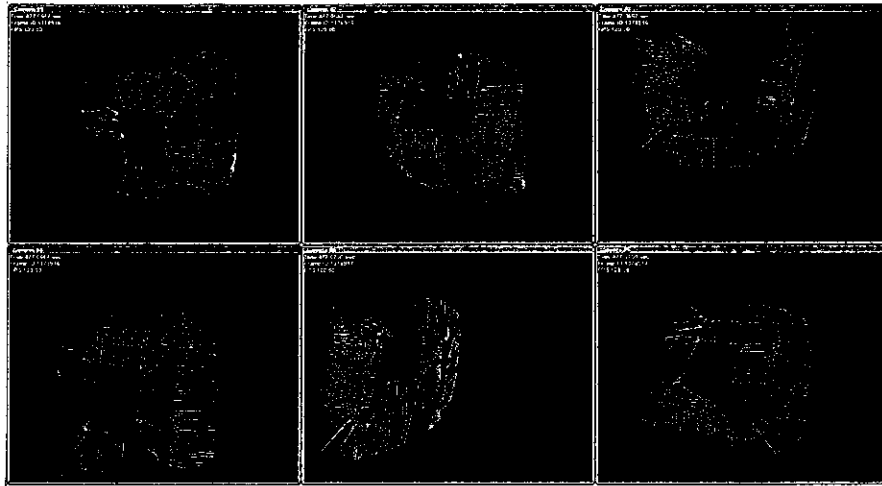
Continued ....

Figure 3

6. Figure 3 shows part of the facial motion capture processes inside the Arena (Expression) software. Which of the following represent the process shown in the figure above?
   A. Recording
   B. Exporting
   C. Camera Calibration Wizard
   D. Facial Capture Wizard

7. In the Arena (Expression) software, what is the next process you are required to do after the "Facial Calibration Wizard" process for the facial motion capture?
   A. Exporting data
   B. Camera Calibration Wizard
   C. Recording of the facial expression
   D. Importing data

8. When importing the FBX file of the facial motion capture data into Maya software, it is important to enable the _____ setting. This will ensure the facial motion capture data will be imported without any issue. What is the missing statement?
   A. Fill Timeline
   B. Optical Markers
   C. Blend Shapes
   D. Constraint

Continued ....

9. Motion capture (MoCap) is beneficial for the entertainment industry, especially to obtain hundreds of realistic human and animal movements. Which of the following are a disadvantage of using MoCap for the animation industry?
   A. MoCap system are not able to capture the motions of characters that should have cartoon-style motion.
   B. MoCap data is harder to work with compared to the traditional key-frame animation.
   C. MoCap system are very expensive and time consuming.
   D. Losing the traditional animation value.

Figure 4

10. Figure 4 shows the marker placement reference in the Motive software. Why are the marker placements for each of the character's legs positioned differently from each other?
    A. For the system to detect the knee joint.
    B. For the system to detect which is the left and right leg of the actor.
    C. For the cameras ease of view.
    D. For the cameras ease of calibration.

Continued ....

SECTION B
Answer only THREE (3) questions out of four. Each question carries 10 marks.

Question 1

When preparing for motion capture shooting, it is best to plan out in detail on the pre-production in order to have good production results with minimal problems.
   a. List out the FOUR (4) types of pre-capture planning for motion capture.

[4 marks]

   b. Based on the question 1(a), choose only THREE (3) types of pre-capture planning and explain it briefly.   [6 marks]

Question 2

Optical motion capture is a system which uses 4 to 32 cameras and a computer that controls the cameras. List out the:
   a. FIVE (5) Advantages of using the optical motion capture system.   [5 marks]

   b. FIVE (5) Disadvantages of using the optical motion capture system.

[5 marks]

Question 3

The application of motion capture is not limited to only the entertainment industry, but in other industries as well. Provide FIVE (5) examples of how motion capture is used in the:

   a. Medical industry   [5 marks]

   b. Sports industry   [5 marks]

Question 4

While working on a project which requires the usage of motion capture system, there are few preparations for capture that need to be considered beforehand.

a. What is the preparation in selecting "talent" for the motion capture?

[4 marks]

b. What are the things that need to be considered while setting up the "marker set"?

[4 marks]

c. Briefly explain the advantages of having "rehearsals" before the actual motion capture session.

[2 marks]

End of Page.